

## EXAMPLE V

Bullets as described in Example II were prepared for firing in a 9 mm Luger pistol. In each test, three slips of 10 rounds each were fired on the test range.

When the powder was Hercules Green Dot powder, the average velocity for the bullets of each clip was 1390, 1389 and 1395 fps. The pressure was 396, 199 and 295 ft.lbs.

When the powder was Hercules Bullseye powder, the average velocity for the bullets of each clip was 1386, 1377 and 1386 fps. The pressure was 291, 288 and 293 ft.lbs.

When the powder was H.S. 700-X, the average velocity for the bullets of each clip was 1402, 1396 and 1932 fps. The pressure was 296, 297 and 291 ft.lbs.

What is claimed is:

1. A bullet that will retain markings from a firearm barrel when fired from such firearm, comprising:

a right cylindrical core with opposed ends, one such opposed end having a tapered section integrally connected thereto, said core being formed from a lead-free composition comprising a filler and a polymer, said polymer being selected from the group consisting of amorphous polymers, low crystallinity polymers and combinations thereof, said composition retaining its integrity when fired from the firearm, said right cylindrical core having a jacket that is cylindrical and formed from a thermoplastic polymer or copper, said thermoplastic polymer having a softening point above firearm barrel temperatures, the adhesion between the jacket and the core being sufficient to retain the integrity of the bullet on firing until impact, said bullet having a weight that is at least 80% that of a comparable bullet for such firearm, said comparable bullet being formed from lead.

2. The bullet of claim 1 in which the weight is at least 85% of the comparable lead bullet.

3. The bullet of claim 1 in which the jacket and core separate on impact.

4. The bullet of claim 1 in which the mass of the bullet is sufficient to actuate firearm reloading mechanisms.

5. The bullet of claim 1 in which the tapered section is a truncated cone or truncated parabolium.

6. The bullet of claim 1 in which the bullet has a tip that is parabolic, rounded or a hollow point.

7. The bullet of claim 1 in which the jacket of the bullet extends over the tapered section attached to one end of the right cylindrical core.

8. The bullet of claim 1 in which the other of the opposed ends is a truncated tapered section.

9. The bullet of claim 1 in which the polymer of the core is an ionomer.

10. The bullet of claim 1 in which the polymer of the core is selected from ethylene/methacrylic acid copolymer ionomers, polyetherester elastomers and polyamides.

11. The bullet of claim 1 in which the polymer of the core is an ethylene/ methacrylic acid copolymer ionomer.

12. The bullet of claim 1 in which the polymer of the core is polyamide.

13. The bullet of claim 2 in which the polyamide is nylon 11.

14. The bullet of claim 1 in which the filler is particles of copper.

15. The bullet of claim 1 in which the filler is selected from the group consisting of tungsten, bismuth, tin and stainless steel.

16. The bullet of claim 1 in which the bullet retains markings from the barrel of said firearm.

17. The bullet of claim 1 in which the jacket at the other of the opposed ends is curled inwards towards the tip.

18. The bullet of claim 17 in which the remainder of said end is free of jacket.

19. The bullet of claim 1 in which the jacket is copper.

20. The bullet of claim 1 in which the jacket is a thermoplastic polymer.

21. A bullet of claim 1 in a shell, said bullet being capable of being inserted into a firearm and fired therefrom.

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22. A lead-free bullet comprising:  
a cylindrical core formed from a lead-free composition comprising ethylene/methacrylic acid copolymer ionomer and a filler including particles selected from the group consisting of tungsten, bismuth, tin, copper and stainless steel, and a cylindrical copper jacket encasing at least portions of said core, the jacket and the core retaining the integrity of the bullet on firing until impact, and the mass of the bullet being sufficient to actuate firearm reloading mechanisms.

23. A lead-free bullet comprising:  
a cylindrical core formed from a lead-free composition comprising polyamide and a filler including particles selected from the group consisting of tungsten, bismuth, tin, copper and stainless steel, and a cylindrical copper jacket encasing at least portions of said core, the jacket and the core retaining the integrity of the bullet on firing until impact, and the mass of the bullet being sufficient to actuate firearm reloading mechanisms.

24. A lead-free bullet comprising:  
a cylindrical core formed from a lead-free composition comprising ethylene/methacrylic acid copolymer ionomer and a filler including particles selected from the group consisting of tungsten, bismuth, tin, copper and stainless steel, and a cylindrical thermoplastic polymer jacket encasing at least portions of said core, the jacket and the core retaining the integrity of the bullet on firing until impact, and the mass of the bullet being sufficient to actuate firearm reloading mechanisms.

25. A lead-free bullet comprising:  
a cylindrical core formed from a lead-free composition comprising polyamide and a filler including particles selected from the group consisting of tungsten, bismuth, tin, copper and stainless steel, and a cylindrical thermoplastic polymer jacket encasing at least portions of said core, the jacket and the core retaining the integrity of the bullet on firing until impact, and the mass of the bullet being sufficient to actuate firearm reloading mechanisms.

26. A lead-free frangible bullet comprising:

a core having a cylindrical section and an integral tapered section terminating at a nose, said core being formed from a lead-free composition comprising a polymer selected from the group consisting of amorphous polymer, low crystallinity polymers and combinations thereof and a filler including particles selected from the group consisting of tungsten, bismuth, tin, copper and stainless steel, and a cylindrical copper jacket surrounding said cylindrical section and said tapered section of said core but not covering said nose, the jacket and the core retaining the integrity of the bullet on firing until impact and the core fragmenting upon impact, and the mass of the bullet being sufficient to actuate firearm reloading mechanisms.

27. A lead-free frangible bullet comprising:

a core having a cylindrical section and an integral tapered section terminating at a nose, said core being formed from a lead-free composition comprising polyamide and a filler including particles of copper, and a cylindrical copper jacket surrounding said cylindrical section and said tapered section of said core but not covering said nose, the jacket and the core retaining the integrity of the bullet on firing until impact and the core fragmenting upon impact, and the mass of the bullet being sufficient to actuate firearm reloading mechanisms.

28. A lead-free frangible bullet comprising:

a core having a cylindrical section and an integral tapered section terminating at a nose, said core being formed from a lead-free composition comprising ethylene/methacrylic acid copolymer ionomer and a filler including particles of copper, and a cylindrical copper jacket surrounding said cylindrical section and said tapered section of said core but not covering said nose, the jacket and the core retaining the integrity of the bullet on firing until impact and the core fragmenting upon impact, and the mass of the bullet being sufficient to actuate firearm reloading mechanisms.